

REMARKS

The Advisory Action of July 30, 2002 was received and carefully reviewed. Applicants hereby file an RCE and Preliminary Amendment to continue prosecution of the instant application. It should be noted for the record that the Amendment After Final was filed on June 19, 2002, rather than "July 17th, 2002" as provided on page 2 of the Advisory Action. Consideration and allowance of the instant application are now respectfully requested.

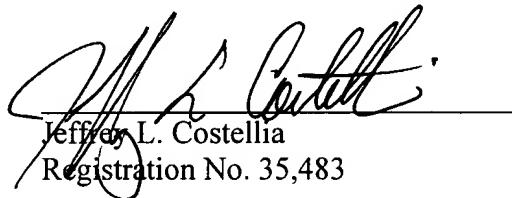
Claims 5-8, 11-12, 16, 19, 27-48 and 67-84 are rejected under 35 U.S.C. 103(a) as being unpatentable over Oka in combination with Liu et al. and in combination with Kuznetsov and in combination with Kumomi. In response to this rejection, Applicants have amended independent claims to recite that a first thin film transistor is so arranged that crystals extend along with a direction connecting source and drain regions of said first thin film transistor. Although the examiner may refer to Figs. 5-8 of Oka, it does not appear that Oka suggests or discloses where source and drain regions should be located in an island region (501, 602, 702 or 802). In view of the above, Applicants contend that this amendment can overcome the rejection.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Prompt reconsideration and allowance are earnestly solicited.

Application Serial No. 08/811,742
Attorney Docket No. 740756-1641

Should the Examiner believe that anything further is desirable in order to place the application into condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



Jeffrey L. Costellia
Registration No. 35,483

JLC/kbd
Attorney Docket No.: 740756-1641

Enclosure: Version with markings to show changes made

Nixon Peabody LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
Telephone: (703) 770-9300
Facsimile: (703) 770-9400

Version with markings to show changes made

Please cancel claims 76-84 and amend claims 27, 31, 33, 36, 42, 45 and 47 as follows.

27. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor.

31. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor, and

wherein a concentration of said metal in said second region is lower than that in said first region.

33. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a glass substrate having a glass strain point of 593°C or less, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor.

36. (Amended) A method of manufacturing a semiconductor device for an active matrix type electro-optical display having a driving circuit portion and a display portion comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region on said driving circuit region and a second region on said display portion;

disposing a metal in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate; and

after the crystallization of said semiconductor film, forming a first thin film transistor by using said crystals of the semiconductor film and a second film transistor by using the second region of the semiconductor film,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor.

42. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing a metal containing material in contact with a selected region of only the first region of the semiconductor film, said metal being capable of promoting crystallization of said semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said metal through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor, and

wherein said first region and said second region each includes hydrogen.

45. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing nickel in contact with a selected region of only the first region of the semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said nickel through the semiconductor film, thereby forming crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor.

47. (Amended) A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film to be crystallized over a substrate, said semiconductor film having a first region and a second region;

disposing nickel in contact with a selected region of only the first region of the semiconductor film;

heating said semiconductor film so that crystallization of said semiconductor film occurs only in the first region thereof while the semiconductor film in said second region is not crystallized, wherein said crystallization proceeds in a direction parallel to a major surface of said substrate from said selected region with diffusion of said nickel through the semiconductor film, thereby crystals of said semiconductor film in said first region extending parallel with the major surface of the substrate;

patterning said semiconductor film in order to form a first semiconductor island [consisting of] comprising the first region and a second semiconductor island [consisting of] comprising the second region; and

forming a first thin film transistor by using said first semiconductor island and a second thin film transistor by using said second semiconductor island,

wherein said first thin film transistor is so arranged that said crystals extend along with a direction [in which carriers of said first thin film transistor flow] connecting source and drain regions of said first thin film transistor.